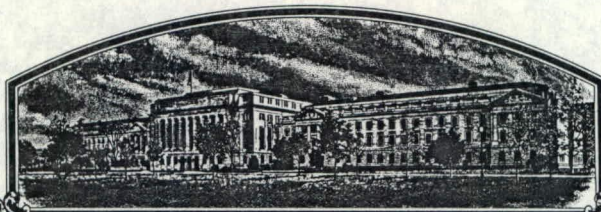


No.

8400045



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME;

RIJK ZWAAN
Zaadteelt en Zaadhandel, B.V.
Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (U.S.C. 542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CAULIFLOWER

'Senator'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 28th day of June in the year of our Lord one thousand nine hundred and eighty-five.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R. Blank
Secretary of Agriculture

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S) Rijk Zwaan Zaadteelt en Zaadhandel B.V.		2. TEMPORARY DESIGNATION Type 616 RZ		3. VARIETY NAME SENATOR <i>4/2/85</i>	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) P.O. Box 40 2678 ZG De Lier, Holland.		5. PHONE (Include area code) 01745 - 3941		FOR OFFICIAL USE ONLY PVPO NUMBER 8400045	
6. GENUS AND SPECIES NAME Brassica Oleracea L. var. botrytis		7. FAMILY NAME (Botanical) Cruciferae		FILING DATE 2/3/84 TIME 2:30 <input type="checkbox"/> A.M. <input checked="" type="checkbox"/> P.M.	
8. KIND NAME Cauliflower		9. DATE OF DETERMINATION		FEE RECEIVED AMOUNT FOR FILING \$ 1,000 DATE 2/3/84 AMOUNT FOR CERTIFICATE \$ 500.00 DATE 4/2/85	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) corporation				12. DATE OF INCORPORATION 18-08-1953	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Holland					
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS					

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

- a. ☒ Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- b. ☒ Exhibit B, Novelty Statement
- c. ☒ Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- d. ☒ Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.)

☐ Yes (If "Yes," answer items 16 and 17 below) ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?

The Netherlands

☒ Yes (If "Yes," give names of countries and dates) ☐ No

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?

☐ Yes (If "Yes," give names of countries and dates) ☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT <i>Rijk Zwaan</i> Zaadteelt en Zaadhandel B.V.	DATE 26/1-84
SIGNATURE OF APPLICANT	DATE 1

INSTRUCTIONS

General: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$1000 fee (\$500, *filing fee* and \$500, *examination fee*) to U.S. Department of Agriculture, Agricultural Marketing Service, Livestock, Meat, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the *Regulations and Rules of Practice*.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

Item

- 9 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 14a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 14b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 14c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 14d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 15 If "Yes" is specified (*seed of this variety be sold by variety name only as a class of certified seed*) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "No," he may change his choice. (See section 180.16 of the *Regulations and Rules of Practice*.)
- 16 See section 42 of the Plant Variety Protection Act and section 180.7 of the *Regulations and Rules of Practice*.

Re: Cauliflower <Nr. 616 RZ> 'SENATOR' njs 4/4/85

E X H I B I T A

Origin and Breeding History of the variety:

1. ~~Nr. 616 RZ~~ ^{SENATOR} originated from a hand crossing in 1971 between own white flowering breeding material.
2. Pure line selections were made on plant-type, maturity, uniformity and quality for 9 generations on trial fields in the Netherlands and Western Germany.

The genetic make-up of the variety was stabelized in the fifth generations. After that, production tests have been carried out under mass and line selection.

^{'SENATOR'}
~~Nr. 616 RZ~~ appeared to be stable and uniform during the last 4 generations, both in our trials and official tests of N.A.K.G.



Hollandsch normaal 3

M.U.Z.

Mr. Cauliflower No. 618 H5

EXHIBIT A

Origin and Breeding History of the Variety:

1. The variety originated from a hand crossing in 1971 between
own white flowering breeding material.

2. Pure line selections were made on plant-type, maturity,
uniformity and quality for 9 generations on trial fields
in the Netherlands and Western Germany.

The genetic make-up of the variety was stabilized in the
fifth generation. After that, production tests have been
carried out under mass and fine selection.

Mr. 618 H5 appeared to be stable and uniform during the last
4 generations, both in our trials and official tests of W.A.G.



Stallard & Co. Ltd.

M.L.S.

Re: Cauliflower <Nr. 616 RZ> 'SENATOR' rfs 4/2/85

E X H I B I T B

Novelty Statement.

The novelty is based upon unique combination of:

- Upright growth habit
- Genetic white blooming

with strong vigour, complete curd covering, dark blueish green leaf colour of own breeding material.

'SENATOR'
~~Nr. 616 RZ~~ is most similar to Celesta,
however <Nr. 616 RZ> is ~~earlier maturing~~, EQUAL TO CELESTA IN MATURITY.
less pinking and less susceptible to riciness.

(SENATOR'

rfs

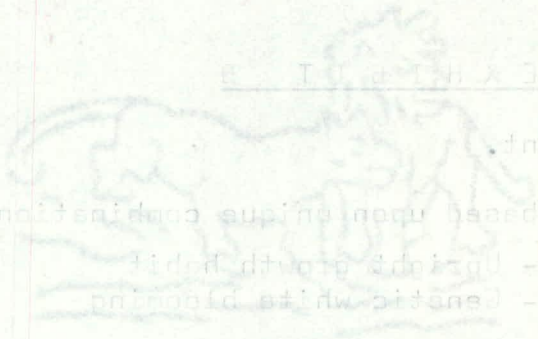
PER ADDENDUM TO EXHIBIT B



040045

Mr. E. J. O'Brien, 616 St. John St., New York, N.Y.

616 St. John St.



Novelty statement.

The novelty is based upon unique combination of:

- Unique growth habit
- Genetic white coloring

with strong vigor, complete cure covering, dark bluish green
leaf colour of young breeding material.
Mr. 616 is most similar to Celeste,
however Mr. 616 is earlier maturing,
less pinkish and less susceptible to diseases.

M. J. O'Brien

Volgblad No
dd

Additional information we got from our trialfield
sown in June 1984 from N.A.K.G. and R.I.V.R.O.

8400045 _ EXHIBIT B RJS
CAULIFLOWER <TYPE 616 RZ> 'SENATOR'



3. Maturity	equal to Celesta	
4. Plant height	equal to Celesta	
5. Leaves:		
number	6-8 more than Celesta	
length	equal to Celesta	
width	10 cm wider than Celesta	
color	3 = dark green (Lecerf group)	(Celesta gray green)
solidity	thicker, more solid than Celesta	
6. Curd	smooth	(Celesta - knobby)
color	1 = bright-white; XXXXXX slightly creamy	
shape	2 = semi-dome; more flatround than Celesta	
texture	smooth	(Celesta- slightly grainy)
8. Riceyness	2 resistant	(Celesta- slightly suscept.)
Seed	larger than Celesta	



Hollandsch normaal 3

M.D.S.

Additional information we get from our field
down in June 1964 from H.K.E. and J.V.P.

CAUTION: TYPE 612 R22

1. Plant height	equal to Celeste
2. Leaves:	equal to Celeste
3. Number	5-6 more than Celeste
4. Length	equal to Celeste
5. Width	1/2 cm wider than Celeste
6. Color	3 = dark green (leaves group) thicker, more solid than Celeste
7. Solidity	
8. Hard	smooth
9. Color	1 = bright-white; 2 = slightly greenish
10. Shape	3 = semi-oval; more flattened than Celeste
11. Texture	smooth
12. Resistance	2 resistant
13. Seed	larger than Celeste

(Celeste - healthy)
(Celeste - slightly grainy)
(Celeste - slightly anise)



RECEIVED
NOV 26 1964



AMS
PVPQ

3

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782
OBJECTIVE DESCRIPTION OF VARIETY
CAULIFLOWER
(*Brassica oleracea* var. *botrytis*)

NAME OF APPLICANT(S) Rijk Zwaan Zaadteelt en Zaadhandel B.V.	VARIETY NAME OR TEMPORARY DESIGNATION <Type 616 RZ> <i>SENATOR</i>
ADDRESS (Street and No., or F.F.D. No., City, State, and ZIP Code) P.O. Box 40 - 2678 ZG De Lier, Holland.	FOR OFFICIAL USE ONLY PVPO NUMBER 8400045

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. or) when number is either 99 or less or 9 or less.

1. REGION OF ADAPTATION: (Where best adapted in the U.S.A.)

<input type="text" value="6"/>	1 = NORTHWEST	2 = NORTHCENTRAL	3 = NORTHEAST	4 = SOUTHEAST	5 = SOUTHWEST
	6 = MOST REGIONS				

2. SEASON: (Main crop)

<input type="text" value="3"/>	1 = LATE FALL - EARLY WINTER	2 = LATE WINTER - EARLY SPRING
	3 = LATE SPRING - EARLY SUMMER	4 = LATE SUMMER - EARLY FALL

3. MATURITY: (Days to 50% harvest)

<input type="text" value="0"/> <input type="text" value="6"/> <input type="text" value="0"/>	FROM TRANSPLANTS	<input type="text" value="1"/> <input type="text" value="0"/>	NO. DAYS HARVESTING PERIOD
<input type="text" value="0"/> <input type="text" value="9"/> <input type="text" value="5"/>	FROM DIRECT SEEDING		

4. PLANT HEIGHT: (At harvest)

<input type="text" value="2"/> <input type="text" value="1"/>	CM. FROM SOIL LINE TO TOP OF CURD	
<input type="text" value="0"/> <input type="text" value="4"/>	CM. TALLER THAN	<input type="text" value="3"/> } 1 = EARLY ERFURT 2 = SUPER SNOWBALL A
<input type="text" value="0"/> <input type="text" value="0"/>	CM. SHORTER THAN	<input type="text" value="5"/> } 3 = SNOWBALL Y
		4 = VEITCH AUTUMN GIANT
		5 = OTHER (Specify) <u>Celesta</u>

5. LEAVES:

<input type="text" value="2"/> <input type="text" value="6"/>	TOTAL NUMBER	<input type="text" value="7"/> <input type="text" value="4"/>	CM. AVERAGE LENGTH AT MID-POINT OF PLANT (Including Petiole)
		<input type="text" value="4"/> <input type="text" value="0"/>	CM. AVERAGE WIDTH AT MID-POINT OF PLANT
<input type="text" value="2"/>	1 = STRAIGHT MARGINS 2 = WAVY MARGINS	<input type="text" value="2"/>	1 = THIN VEINS 2 = THICK VEINS
<input type="text" value="1"/>	1 = MOSTLY SESSILE 2 = MOSTLY PETIOLATE 3 = EQUALLY SESSILE AND PETIOLATE		
<input type="text" value="3"/>	COLOR: 1 = LIGHT GREEN 2 = MEDIUM GREEN (Snowball No. 10) 3 = DARK GREEN (Lecerf Group) 4 = BLUSH GREEN (November)	<input type="text" value="3"/>	1 = UPRIGHT, EXPOSE CURD 2 = INCURVED, PARTIALLY COVER CURD 3 = COMPLETELY COVER CURD (Self blanching)

6. CURD:

<input type="text" value="2"/> <input type="text" value="0"/>	CM. DIAMETER	<input type="text" value="1"/> <input type="text" value="3"/>	CM. DEPTH
---	--------------	---	-----------

6. CURD:

8400045

☐ 1 = TIGHT 2 = LOOSE

☐ 2 SHAPE: 1 = FLAT 2 = SEMI-DOME
 3 = DOME

☐ 1 = SMOOTH 2 = KNOBBY

☐ 1 COLOR: 1 = BRIGHT WHITE 2 = CREAMY, DULL WHITE ☐ 1 = NO LEAVES IN CURD 2 = LEAVES IN CURD
 3 = PURPLE-GREEN

7. DISEASE RESISTANCE: (0 = Not Tested; 1 = Susceptible, 2 = Resistant. Specify race if known)

☐ 0 BLACK SPOT

☐ 0 CLUBROOT

☐ 0 PHYTOPHTHORA ROOT ROT

☐ 0 WHITE BLISTER

☐ 0 BLACK ROT

☐ 0 BOTTOM ROT

☐ 0 CERCOSPORELLA LEAF SPOT

☐ 0 DOWNY MILDEW

☐ 0 POWDERY MILDEW

☐ 0 VERTICILLUM WILT

☐ 0 BLACK LEG

☐ 0 CAULIFLOWER MOSAIC

☐ 0 RING SPOT

☐ 0 TURNIP YELLOW MOSAIC

☐ 0 YELLOWS

☐ 0 WIRE STEM

☐ 0 OTHER (Specify) _____

8. OTHER RESISTANCE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☐ 2 "BUTTONING"

☐ 2 "BLINDNESS"

☐ 2 "RICEYNESS"

☐ 2 "WHIPTAIL"

☐ 0 INSECT (Specify) _____

9. INDICATE A VARIETY THAT MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
MATURITY	Celesta	PLANT COLOR	
ADAPTATION	"	CURD SIZE	Celesta
PLANT HABIT	"	CURD SHAPE	"
PLANT SIZE	"	CURD COLOR	"

REFERENCE:

Nieuwhof, M. 1969. Cole Crops — World Crop Series, Leonard Hill.

COMMENTS:

Re: question 2: actually from late spring until late fall.

Re: question 3: date from 10 April sowing.

 Re: question 9: - genetic pure white flowering
 - erect foliage
 - providing complete curd cover.

EXHIBIT D Data Indicative of Novelty.

Cauliflower ~~Nr. 616 RZ~~, Application No.

'SENATOR' rfs 4/2/85

Cauliflower ~~Nr. 616 RZ~~ most closely resembles Celesta, but
~~matures about 2 days earlier and besides~~ ^{*MAS*} less pinking.

SEE EXHIBIT B

rfs



Hollandsch normaal 3

M. U. Z.

EXHIBIT B Data Indicative of Novelty

Caustiflow No. 612 Application No.

Caustiflow No. 612 is most closely resembles Celstat, but
matures about 2-4 years earlier and has less pinking.



Richardson International

M.P.E.